AMENDMENTS TO THE CLAIMS

Please add new claims 32-44.

A complete listing of all claims is presented below.

1. (Previously presented) A multi-zonal monofocal ophthalmic lens comprising:

a plurality of zones, including:

an inner zone having a first optical power;

an intermediate zone surrounding the inner zone and having a second optical power that is different from the first power by a magnitude that is less than at least about 0.75 Diopter; and

an outer zone surrounding the intermediate zone having a third optical power different from the second optical power;

the plurality of zones all disposed such that all light entering the inner zone, the intermediate zone, and the outer zone of the monofocal ophthalmic lens from a distant point source is focused to substantially a single point.

2. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, wherein, the third optical power is equal to the first optical power.

3. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, wherein the second power differs from the first power by a magnitude that is less than or equal to about 0.65 Diopter.

4. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, wherein the inner zone comprises a spherical surface and the intermediate zone comprises an aspherical surface.

5. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, further comprising:

an outer zone surrounding the intermediate zone and having a third power wherein the second power differs from both the first and third powers by a magnitude that is less than or equal to at least about 0.75 Diopter.

6. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 5, wherein the second power differs from both the first and third powers by a magnitude that is less than or equal to about 0.65 Diopter.

7. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 5, wherein the inner zone comprises a spherical surface and the intermediate zone comprises as aspherical surface.

8. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 7, wherein the outer zone comprises an aspherical surface.

9. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, further comprising:

multiple outer zones surrounding the intermediate zone, wherein each zone in the lens has a power that differs from the power of the adjacent zone(s) by a magnitude that is less than or equal to at least about 0.75 Diopter.

10. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 9, wherein there are between 3 and 7 total zones.

11. (Previously presented) The multi-zonal monofocal ophthalmic lens of claim 1, wherein the ophthalmic lens is an intraocular lens and includes haptics.

12. (Previously presented) A multi-zonal monofocal intraocular lens having an optic with a plurality of discrete concentric optical zones centered on the optical axis, the zones adapted to focus incoming light rays to form an image from an object, comprising:

an inner zone overlapping the optical axis of the lens for producing an image when the intraocular lens is centered on the optical axis of the human eye; and

a first surrounding zone concentric about the inner zone and adapted to compensate for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than at least about 0.1 mm;

the inner zone and the first zone disposed such that all light entering the inner zone and the first surrounding zone of the monofocal ophthalmic lens from a distant point source is focused to substantially a single point.

13. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the first surrounding zone compensates for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than about 0.4 mm.

14. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the first surrounding zone compensates for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than about 0.5 mm.

15. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the first surrounding zone also compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 1 degree.

16. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the first surrounding zone also compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 5 degrees.

17. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the first surrounding zone also compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 10 degrees.

18. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the power of the first surrounding zone differs from the power of the inner zone by a magnitude that is less than or equal to or least about 0.75 Diopter.

19. (Original) The multi-zonal monofocal intraocular lens of claim 12, wherein the inner zone comprises a spherical surface and the first surrounding zone comprises an aspherical surface.

20. (Original) The multi-zonal monofocal intraocular lens of claim 12, further comprising:

at least one other zone outside of the first surrounding zone, wherein each zone in the lens has a power that differs from the power of any other zone by a magnitude that is less than or equal to at least about 0.75 Diopter.

21. (Original) The multi-zonal monofocal intraocular lens of claim 20, wherein there are between 3 and 7 total zones.

22. (Previously presented) A method of designing a multi-zonal monofocal ophthalmic lens, comprising:

providing an optical model of the human eye;

providing an optical model of a lens comprising an inner zone, an intermediate zone, an outer zone, and zonal design parameters, the inner zone, the intermediate zone, and the outer zone disposed such that all light entering the inner zone, the intermediate zone, and the

outer zone of the monofocal ophthalmic lens from a distant point source is focused to substantially a single point.; and

adjusting the zonal design parameters based on an image output parameter for one or more non-optimal states of the lens.

23. (Original) A method as in claim 22, further including testing the intraocular lens over a plurality of corneal surface variations and dispositions of optical elements in the eye's optical system using tolerance analyzing techniques.

24. (Original) A method as in claim 22, further comprising repeating at least a portion of the method to modify zonal parameters and achieve a better average optical performance.

25. (Previously presented) A multi-zonal monofocal ophthalmic lens comprising:

a plurality of zones, including:

an inner zone having a first optical power;

an intermediate zone surrounding the inner zone and having a second optical power that is different from the first power by a magnitude that is less than at least about 0.75 Diopter; and

an outer zone surrounding the intermediate zone having a third optical power different from the second optical power;

the plurality of zones disposed such that all light from a distant point source entering the inner zone, the intermediate zone, and the outer zone of the lens substantially fall within the range of the depth-of-focus of a spherical lens having an equivalent focal length.

26. (Previously presented) The multi-zonal monofocal intraocular lens of claim 25, wherein the inner zone, the intermediate zone, and the outer zone of the monofocal ophthalmic lens each have a relative refractive power, the relative refractive powers being within the range of the depth-of-focus of a spherical monofocal intraocular lens.

27. (Previously presented) A multi-zonal monofocal intraocular lens having an optic with a plurality of discrete concentric optical zones centered on the optical axis, the zones adapted to focus incoming light rays to form an image from an object, comprising:

an inner zone overlapping the optical axis of the lens for producing an image when the intraocular lens is centered on the optical axis of the human eye; and

a first surrounding zone concentric about the inner zone and adapted to compensate for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than at least about 0.1 mm.

28. (Previously presented) The multi-zonal monofocal intraocular lens of claim 27, wherein the first surrounding zone compensates for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than about 0.4 mm.

29. (Previously presented) The multi-zonal monofocal intraocular lens of claim 27, wherein the first surrounding zone also compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 1 degree.

30. (Previously presented) The multi-zonal monofocal intraocular lens of claim 27, wherein the first surrounding zone also compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 5 degrees.

31. (Previously presented) The multi-zonal monofocal intraocular lens of claim 27, wherein the inner zone comprises a spherical surface and the first surrounding zone comprises an aspherical surface.

32. (New) A multi-zonal monofocal ophthalmic lens comprising:

a first lens surface and a second lens surface disposed opposite the first lens surface;

the first lens surface comprising:

a first zone having sag surface characterized by a first base radius of curvature and a first asphericity constant; and

a second zone surrounding the first zone and having sag surface characterized by a second base radius of curvature and a second asphericity constant;

the second base radius of curvature being unequal to the first base radius of curvature and/or the second asphericity constant being unequal to the first asphericity constant;

the zones configured to focus light entering the zones from a distant point source to substantially a single point such that the light substantially falls within the range of the depth-of-focus of a spherical lens having an equivalent focal length.

33. (New) The multi-zonal monofocal ophthalmic lens of claim 32, further comprising a third zone surrounding the second zone and having sag surface characterized by a third base radius of curvature and a third asphericity constant.

34. (New) The multi-zonal monofocal ophthalmic lens of claim 33, wherein:

the first zone has a first optical power, the second zone has a second optical power, and the third zone has a third optical power;

the second optical power differs from both the first and third optical powers by a magnitude that is less than or equal to about 0.65 Diopter.

35. (New) The multi-zonal monofocal ophthalmic lens of claim 34, wherein the third optical power is equal to the first optical power.

36. (New) The multi-zonal monofocal ophthalmic lens of claim 32, the first zone has a first optical power and the second zone has a second optical power, second optical power differs from the first power by a magnitude that is less than at least about 0.75 Diopter.

37. (New) The multi-zonal monofocal ophthalmic lens of claim 32, comprising a diffractive grating disposed on the first surface.

38. (New) The multi-zonal monofocal ophthalmic lens of claim 32, comprising a diffractive grating disposed on the second surface.

39. (New) The multi-zonal monofocal ophthalmic lens of claim 32, wherein the first base radius of curvature equal the second base radius of curvature

40. (New) The multi-zonal monofocal ophthalmic lens of claim 32, wherein the first asphericity constant equal the second asphericity constant.

41. (New) The multi-zonal monofocal ophthalmic lens of claim 32, wherein the zones are adapted to focus incoming light rays to form an image from an object and the a second zone is adapted to compensate for optical aberrations in the image resulting from implanted intraocular lens decentration of greater than at least about 0.1 mm.

42. (New) The multi-zonal monofocal ophthalmic lens of claim 32, wherein the zones are adapted to focus incoming light rays to form an image from an object and the a second zone is adapted to compensates for optical aberrations in the image resulting from implanted intraocular lens tilt of greater than at least about 1 degree.

43. (New) The multi-zonal monofocal ophthalmic lens of claim 32, wherein first lens surface further characterized by boundary at least one boundary parameter that is selected to smoothly connect the first zone with the second zone.

44. (New) A multi-zonal monofocal ophthalmic lens comprising:

a first lens surface and a second lens surface disposed opposite the first lens surface;

the first lens surface comprising at least two zones designated by successive integers *i*, the surface being characterized by a sag that varies according to the relationship:

$$\textbf{Sag} = \frac{C_i * r^2}{1+\sqrt{1-(1+K_i)*C_i^{\,2} * r^2}} + \sum_{j=0}^{M} B_{ij} * (r - r_i)^{2j} + \sum_{j=1}^{M} T_{ij} * (r - r_{i-1})^{2j}$$

wherein C_i is a base radius of curvature of the *i*th zone, K_i an asphericity constant of the *i*th zone, r_i is the height of the *i*th zone, and the Bij and Tij are boundary parameters selected to smoothly connect the zones, and M is an integer selected to provide a predetermined amount of smoothness over the transition between zones;

the zones configured to focus light entering the zones from a distant point source to substantially a single point such that the light substantially falls within the range of the depth-of-focus of a spherical lens having an equivalent focal length.